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Abstract

The Obama administration's effort to encourage homeowners to refinance their mortgages under the Home Affordable Refinance Program (HARP) represents a reasonable approach at helping homeowners benefit from the current low mortgage rates. The HARP reduces the high costs of refinancing and in some cases makes refinancing possible for properties whose values have fallen below the mortgages' values. While this will provide the intended benefit of increasing the homeowners' income by reducing their mortgage payments, a closer inspection of the refinancing process in the US reveals that the current treatment of prepayment in US mortgages provides a disincentive for homeowners to accumulate equity in their houses. We propose a new mortgage contract, one which augments the terms of the existing conventional fixed-rate mortgage, which encourages homeowner equity accumulation thus leading to a more stable housing sector that can better weather future house price declines. From an economic policy perspective, the ability to reduce long term debt payments will have the same economic effect of increasing household's permanent income which can provide a boost to the economy. This new mortgage proposal can be implemented by the government at little to no cost.

Disciplines

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The Curtailment Mortgage: A Proposal to Benefit Homeowners

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The Obama administration's effort to encourage homeowners to refinance their mortgages under the Home Affordable Refinance Program (HARP) represents a reasonable approach at helping homeowners benefit from the current low mortgage rates. The HARP reduces the high costs of refinancing and in some cases makes refinancing possible for properties whose values have fallen below the mortgages' values. While this will provide the intended benefit of increasing the homeowners' income by reducing their mortgage payments, a closer inspection of the refinancing process in the US reveals that the current treatment of prepayment in US mortgages provides a disincentive for homeowners to accumulate equity in their houses. We propose a new mortgage contract, one which augments the terms of the existing conventional fixed-rate mortgage, which encourages homeowner equity accumulation thus leading to a more stable housing sector that can better weather future house price declines. From an economic policy perspective, the ability to reduce long term debt payments will have the same economic effect of increasing household's permanent income which can provide a boost to the economy. This new mortgage proposal can be implemented by the government at little to no cost.

Curtailment and Current Practice

An undesirable feature of the fixed-rate mortgage contract is the treatment of a partial pay down of the mortgage principal, known in the industry as curtailment. Refinancing can be viewed as the extreme case of curtailment, for the entire mortgage balance. Under current rules, any amount the homeowner pays which is above his scheduled payment is used to reduce the outstanding mortgage balance. This reduction is used to re-amortize the mortgage by keeping the size of the mortgage payments the same but reducing the loan's maturity, cutting the end off the mortgage, so to speak. The consequence is that such curtailment payments will have no effect on the homeowner's immediate income since mortgage payments will remain the same till the new maturity. The homeowner's only benefit from curtailment is the knowledge that the loan will be shortened and that there will be a reduction in the total interest paid, benefits that he enjoys only at maturity.

For example, the monthly payment for a 25-year, \$150,000, 6% mortgage is \$966.45. After five years of regular payments, the mortgage balance is reduced to \$134,898

through amortization. Suppose the homeowner decides to make a curtailment payment of \$5,000 to increase his equity and reduce his mortgage debt. This payment will be used to reduce his mortgage balance to \$129,898 and the mortgage maturity will be reduced by 16 months from 20 remaining years to 18 years and 8 months. However, the mortgage payments will remain at \$966.45 for the remainder of his new loan term.

We see that the primary benefit from this curtailment example is realized in 18 years and 8 months. While it's true that the borrower will save \$10,919 of interest charges over the remaining life of the loan, this benefit is of little value to any borrower who has more immediate and intermediate-term financial concerns. This feature of the fixed-rate mortgage provides a strong disincentive for homeowners to prepay their mortgage debt with discretionary funds gained either through an unanticipated one time increase in income or from wage increases arising from normal earning profiles. Moreover, the idea of partially paying off one's mortgage is made less attractive by the fact that in actuality, few mortgages are ever held to maturity.

A New Proposal – The Curtailment Mortgage

The disincentive to pay down one's mortgage with curtailment payments can be easily reversed by altering the method that such payments are used to reduce the mortgage balance. To end this disincentive, we propose a new mortgage instrument, the Curtailment Mortgage, which fundamentally alters the way mortgage payments are determined. Instead of keeping the mortgage payment the same and reducing the loan's maturity, a mortgage agreement could easily keep the remaining maturity the same and re-amortize the loan, resulting in a reduction in the mortgage payment. We call such a mortgage the Curtailment Mortgage (CM).

Using our previous example of a 5-year-old, \$134,898, 6% mortgage with 20 years remaining, a curtailment payment of \$5,000 under the CM will decrease the borrower's mortgage payment from \$966.45 to \$930.63, a reduction of \$35.82 each month for the next 20 years. With the \$5,000 additional payment under the CM, he will still save \$7,322 in interest charges, compared to the savings of \$10,919 that would have been calculated under conventional terms.

The Economic Benefits of the Curtailment Mortgage

While the proposed CM represents a fairly simple change, there are substantial economic benefits to a CM borrower. From a macro-economic perspective, the biggest benefit from this payment reduction is that such a reduction represents a change in a homeowner's permanent income. It's widely known that real economic growth generally comes from increases in permanent income, and much less so from changes in transitory income. Permanent income increases can occur when an unemployed worker finds employment, a student gets his first job, or a worker receives a permanent raise. These changes in permanent income are what lead consumers to make long term purchase decisions that

often involve sizable durable goods such as cars. Long term income increases will allow them to sustain a loan payment to finance such purchases. In contrast, a one-time windfall gain which temporarily boosts an individual's income has no wealth effect other than during the time they receive this gain.

Since the longest debt most Americans will hold is their mortgage, a reduction in payments, even of a modest amount, will correspond roughly to receiving a raise at work, with its increase in disposable income. The raise effect becomes more prominent if we note that the reduction in payments represents an increase in after-tax income. By comparison, the equivalent increase in gross income that would be required to generate this increase in after-tax income is, of course, much more substantial.

Using our previous example, if we assume the borrower qualifies for his loan under a 23% qualification ratio (that is, his mortgage payment of \$966.45 represents 23% of his gross monthly income), our borrower's gross monthly income is \$4,201.96. If we further assume that taxes and benefits account for 31% of his gross income, the borrower's net monthly disposable income is \$2,899.35. For this borrower, an increase in his net income of \$35.82 under the CM would be equivalent to the borrower receiving a 1.2% pay raise in his gross income. A larger curtailment payment of \$8,000 under the CM would reduce his monthly payment by \$57.31 and would correspond to a 2% pay increase. We see that even with such seemingly modest reductions in mortgage payments, the equivalent increase in gross income to result in such reductions is not insignificant.

Because of the long term nature of US mortgage debt, the CM's adjustment in monthly payments can also be viewed as one of the few ways that consumers can effectively convert transitory income into permanent income. The low interest rate and lending friendly environment during the pre-subprime crisis period resulted in many households taking on additional mortgage debt in the form of second mortgages and cash-out refinancings. Some used these funds to finance discretionary purchases, such as vacations and various consumer goods. In essence, this environment encouraged consumers to purchase "transitory" goods using "permanent" income. The consequence of this sequence of events is that many homeowners ended up consuming their equity and therefore increasing their debt levels. This erosion in home equity also increases the likelihood of mortgage defaults, particularly in periods of falling house prices such as the one we recently experienced. The default rates in 2008 surely would have been lower had consumers not adopted such aggressive strategies. Given the long term nature of mortgages, the CM can potentially reverse this pattern by providing an incentive, and an effective financial vehicle, to convert the homeowner's transitory income into permanent income. Not only is this income transfer an attractive feature, such transfers would also incentivize borrowers to increase their home equity.

The ability to reduce one's mortgage payment also can provide an incentive for homeowners to make further curtailment payments. For example, one can envision borrowers using tax refunds for curtailment payments each year, thereby effectively buying down their mortgage payments. Many occupations have defined periods when workers' income increases, anticipated or unanticipated, in certain months of a year.

Assuming the base salary is sufficient for living expenses, such increases can be used as curtailment payments under the CM. This incentive will likely increase such activity and the consequence is that homeowners will accumulate home equity faster thus providing the entire housing sector better protection against mortgage defaults in the next downturn in house prices.

It is important to note that curtailment payments under this CM proposal are strictly voluntary. If the borrower decides not to make such payments, then the mortgage behaves as a standard fully amortizing fixed-rate mortgage. Thus the borrower would be no worse off with a CM than if he took out such a conventional loan.

If It Is So Good, Why Haven't We Seen This Before?

This question (why a mortgage that allows adjustable payments does not exist) can be partially addressed by looking into the mortgage securitization process. Mortgages are routinely packaged into bonds which are sold in the fixed-income bond markets. For bond investors prior to the crisis, the primary risk residential mortgaged-backed securities investors' face is prepayment risk. Since conventional mortgage pools in the conforming loan market are guaranteed against default risk by the various government sponsored enterprises (GSE) such as Fannie Mae and Freddie Mac, investors are not concerned about mortgage defaults. What they are concerned with is the uncertainty associated with the premature prepayment of mortgages in the pools. A premature prepayment occurs when borrowers refinance, when they default (with the default guarantee provision paid by the GSEs), or when the borrowers make curtailment payments. Since the majority of mortgage prepayments occurs when homeowners refinance, the bond investors will prematurely receive their proceeds when interest rates have fallen, a time when they would least like to have their proceeds returned. Similarly, when rates rise, refinancing slows and bondholders are delayed from receiving their proceeds. Yet, this is often the time when they would like to see a faster prepayment so that they can take advantage of reinvesting their proceeds at the prevailing higher rates. Both effects represent prepayment risks, and the key component of investors' analysis of these securities often involves complex models which attempt to predict prepayment under various interest rate scenarios.

The CM will, of course, make predicting prepayment much more difficult since borrowers are allowed to partially refinance each month. Thus, a securitized pool of CM will have substantial prepayment risk, a feature that bond investors would find unattractive. This unattractive feature will likely discourage investors from investing in such an asset and therefore deter the creation of a secondary market for such loans. Then again, models could be developed to predict when homeowners will receive small curtailment sums for each borrower for each pool.

While it is possible that the added prepayment risks posed by the CM's prepayment will likely result in higher mortgage rates for such loans, this feature is somewhat offset by the fact that the default rates of such loans will likely be lower. With curtailment, the

homeowner will likely lead to an accelerated increase his equity position over time thus making such loans less likely to default.

Is This the Right Time?

With the current reevaluation of the GSEs, this may present a fruitful time to implement the curtailment mortgage. With the GSE essentially becoming part of the government, these entities can be asked to insure such loans for the social benefit they produce at the expense of GSE's profits. Then again, since the default risks are lower for CM, a GSE guarantee may be financially viable. In sum, the benefits of CMs should far outweigh their disadvantages, and, more critically, the curtailment mortgage could be an engine for accelerating the recovery of the US housing market.

The academic director of the Cornell Center for Real Estate and Finance, Professor Quan was a mortgage economist at the Board of Governors of the Federal Reserve in Washington, D.C., prior to his appointment at Cornell. He is also currently a Professor of Real Estate and Finance at Cornell University.